

PATENT

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated in the following listing of all claims:

1. (previously presented) A method of multicasting, comprising:
sending multicast information from a source to a plurality of targets;
sending respective acknowledgements from each of the targets, indicating receipt of the
multicast information;
merging the respective acknowledgements into a merged acknowledgement, wherein the
merged acknowledgement indicates which of the plurality of targets received the
multicast information; and
supplying the merged acknowledgement to the source.
2. (original) The method as recited in claim 1 wherein the multicast information is
sent across a switch to a plurality of targets.
3. (original) The method as recited in claim 2 wherein the respective
acknowledgements are sent from the respective targets to the switch.
4. (original) The method as recited in claim 3 wherein the switch merges the
respective acknowledgements and forwards the merged acknowledgement to the source.
5. (original) The method as recited in claim 4 wherein the acknowledgements are
supplied in an acknowledgement packet encoding an identity of the acknowledging target.
6. (original) The method as recited in claim 3 wherein the switch is a synchronous
switch and all acknowledgements are received by the switch at the same time.
7. (original) The method as recited in claim 3 wherein the switch is a network
switch coupling a plurality of sources and a plurality of targets in a network.
8. (original) The method as recited in claim 1 wherein the merged
acknowledgement is formed by logically combining the respective acknowledgements.

PATENT

9. (cancelled)

10. (cancelled)

11. (previously presented) A method comprising:
sending multicast information from a source to a plurality of targets;
sending respective acknowledgements from each of the targets, indicating receipt of the multicast information;
merging the respective acknowledgements into a merged acknowledgement, wherein the merged acknowledgement includes a single bit indicating whether all of the targets successfully received the multicast information; and
supplying the merged acknowledgement to the source.

12. (currently amended) A networked system comprising:
a sending node;
a plurality of receiving nodes coupled to ~~simultaneously~~ receive multicast information sent from the sending node during a multicast operation and coupled to provide acknowledgements indicating whether the multicast information was successfully received; and
a switching medium coupled to supply the multicast information to the respective receiving nodes ~~simultaneously~~ and to receive and combine the respective acknowledgements into a combined acknowledgement that indicates which of the plurality of receiving nodes acknowledged receipt of the multicast information, wherein the merged acknowledgement is supplied to the sending node.

13. (original) The networked system as recited in claim 12 wherein the networked system includes a switched data network and the switching medium is a network switch.

14. (original) The networked system as recited in claim 12 wherein each acknowledgement comprises a plurality of bits, each bit corresponding to a different node, one bit being set to indicate that a node corresponding to the one bit successfully received the multicast information.

PATENT

15. (original) The networked system as recited in claim 14 wherein the combined acknowledgement includes a plurality of bits corresponding to multicast targets, each bit of the combined acknowledgement that is set corresponding to a node that successfully received the multicast information.

16. (original) The networked system as recited in claim 12 wherein each acknowledgement comprises a plurality of bits, each bit corresponding to one of a plurality of types of errors.

17. (original) The networked system as recited in claim 16 wherein corresponding bits from respective ones of the acknowledgements are combined in the combined acknowledgement, a bit being set to a first predetermined value in the combined acknowledgement to indicate that one or more of the targets had a particular one of the errors and the bit being set to a second value to indicate that none of the receiving nodes had the particular one of the errors.

18. (original) The networked system as recited in claim 12 wherein the acknowledgements from the plurality of target nodes are provided to the switching medium at a fixed time relative to the sending of the multicast information.

19. (original) The networked system as recited in claim 18 wherein the combined acknowledgement is provided to the source node at a fixed time relative to the sending of the multicast information.

20. (currently amended) The networked system of claim 12A networked system
~~comprising:~~

~~a sending node;~~

~~a plurality of receiving nodes coupled to simultaneously receive multicast information sent from the sending node during a multicast operation and coupled to provide acknowledgements indicating whether the multicast information was successfully received; and~~

PATENT

~~a switching medium coupled to supply the multicast information to the respective receiving nodes simultaneously and to receive and combine the respective acknowledgements into a combined acknowledgement supplied to the sending node, wherein the networked system is pipelined.~~

21. (original) The networked system as recited in claim 12 wherein the switching medium combines the acknowledgements in response to information in each acknowledgement packet that indicates a multicast acknowledge is being sent.

22. (original) The networked system as recited in claim 12 wherein the switching medium combines the acknowledgements into the combined acknowledgement if the acknowledgements arrive at the same time in the switching medium and are destined for a same source.

23. (original) The networked system as recited in claim 12 wherein the switching medium combines the acknowledgements in response to having scheduled a multicast data transfer.

24. (original) The networked system as recited in claim 12 wherein the networked system is operable to reserve switch paths for forwarding the acknowledgements based on switch settings used for forwarding the multicast information.

25. (original) The networked system as recited in claim 12 wherein the networked system includes a plurality of hosts, each of the hosts including both a sending node and a receiving node coupled to the switching medium.

26. (previously presented) An apparatus for transmitting information between an initiator node and a plurality of target nodes, comprising:
means for multicasting information to a plurality of the target nodes from the initiator node; and
means for combining received acknowledgements indicating whether the multicast information was successfully received, into a combined acknowledgement that

PATENT

indicates those of the plurality of target nodes that acknowledged successful receipt of the multicast information and returning the combined acknowledgement to the initiator node.

27. (previously presented) A network node comprising:
a plurality of ports to receive and to transmit multicast information; and
multicast acknowledgement merging logic coupled with the plurality of ports, the logic to generate a merged multicast acknowledgement that indicates acknowledging target nodes of a multicast.
28. (previously presented) The network node of claim 27, wherein the network node includes one or more of a router, switch, and a bridge.
29. (previously presented) The network node of claim 27, wherein indication of the acknowledging target nodes comprises indicating those of the plurality of ports that correspond to acknowledging target nodes.
30. (previously presented) The network node of claim 27, wherein indication of the acknowledging target nodes comprises identifying the acknowledging target nodes.
31. (previously presented) The network node of claim 27 further comprising the multicast acknowledgement merging logic to merge multicast acknowledgements to indicate whether a multicast was successful.
32. (previously presented) The network node of claim 31, further comprising the multicast acknowledgement merging logic to set a forwarding mask that indicates those of the plurality of ports that correspond to multicast target nodes.
33. (currently amended) The network node of claim 32, wherein the multicast acknowledgement merging logic ~~including~~ includes inverters to invert indications of acknowledging multicast target nodes, AND gates to logically AND the inverted indications with the forwarding mask, and a NOR gate to logically combine output of the AND gates.